Global Alliance for Disaster Risk Reduction & Resilience in the Education Sector

GADRRRES Comprehensive School Safety Policy Case Studies Series

Scaling-up Comprehensive School Safety Assessment in Laos and Indonesia

Laos and Indonesia

All Pillars of Comprehensive School Safety

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Overview

Beyond good intentions, and even policy declarations, governments need standardised data to identify how well policies are being implemented at the school level, and to adjust course accordingly. The Comprehensive School Safety (CSS) Assessment Suite is a package of methods and three digital tools that can assist governments in monitoring, evaluating, and intervening for school safety. The first tool introduces users to school safety and can be used to build public awareness. The second tool provides a low-cost way for school assessors to collect in-depth, non-technical information about school safety and identify school facilities that may need a more thorough assessment. The third tool allows trained surveyors to conduct a multi-hazard, rapid visual inspection of school structures and facilities. This third tool helps government officials prioritise, which schools need to be rehabilitated, retrofitted, and replaced. The second and third tools have been piloted in Laos and Indonesia, respectively, with great promise. However, governments and users may require training and ongoing support to use these digital tools and integrate the data collected into school safety planning.

Keywords: CSS Suite, school assessment, comprehensive school safety, digital app, retrofit, education sector planning

Global Context

A cohesive global approach to comprehensive school safety evolved out of a decade long process initiated by the 2005 World Conference on Disaster Risk Reduction. Following the conference, several UN bodies and international non-governmental organisations (NGOs) with interest in school safety and DRR education came together to coordinate their advocacy efforts. In 2006, the United Nations International Strategy for Disaster Reduction (UNISDR) formally recognised them as a Thematic Platform on Knowledge and Education. At the 2009 UNISDR Global Platform for Disaster Risk Reduction, member nations highlighted the importance of school safety, and in 2011, committed to assessing the safety of education structures in their countries. In 2013 the coalition became the Global Alliance for Disaster Risk Reduction and Resilience in the Education Sector (GADRRRES).

After a global consensus process, GADRRRES adopted the Comprehensive

Introduced by Save the Children as part of the ASEAN School Safety Initiative (ASSI), with support from Australian Aid, DipECHO, and New Zealand Ministry of Foreign Affairs.

Produced by Save the Children, Risk RED, UNESCO, and the SPRINT lab of the University of Udine, with support from the global partnership with C&A Foundation and C&A

School Safety Framework as a foundational document in 2014. The framework was also endorsed as a foundational document for the Worldwide Initiative for Safe Schools (WISS), a government-led global partnership for advancing national level actions on school safety. Many governments have also adopted CSS as a way to align policies and plans between the education and disaster management sectors.

The CSS framework uses a child-centred, all-hazards risk assessment and context analysis for action in three overlapping pillars: Safe Learning Facilities, School Disaster Management, and Risk Reduction and Education. The goals of CSS are to:

1. protect children and education workers from death and injury in schools
2. plan for educational continuity in the face of expected hazards
3. strengthen a disaster resilient citizenry through education
4. safeguard education sector investment.

Whilst the development of the CSS Framework provided global actors in DRR with a common model of school safety, organisations lacked any standardised method of measuring progress within the three CSS pillars. Governments need efficient and standardised methods for collecting data on a host of issues, including:

- a school's exposure to natural and technological hazards
- conditions of school structures and facilities
- the daily dangers students may face on the way to and from school
- how well schools implement disaster management planning
- student exposure to risk reduction knowledge and skills.

Without this information, governments cannot identify and prioritise their interventions to support school safety nor can national progress towards school safety be monitored over time.

Developing Assessment Tools

Even as the CSS Framework was emerging, GADRRRES organisations were simultaneously leading efforts to develop a method for measuring progress towards school safety. In 2009, GADRRRES organisations began a desk review of existing approaches to school assessment to determine whether any existing approaches could be adapted as measurements of CSS pillar progress. Three tools showed promise.

UNISDR was developing a crowdsourcing tool called *How Safe is My School?* and GADRRRES was eager to make sure this tool would provide validated feedback at the national level, and link to more systematic assessment.

Separately, NGOs were using paper-survey methodologies to gather information about local hazards and carry out vulnerability and capacity assessments. Some of these paper surveys assessed action and progress across all three pillars of school safety and generated accurate data, but no one was using it effectively. To be an effective tool for assessing CSS progress, those using paper-survey assessments needed more efficient methods to collect and organise the data. Decision-makers at all levels needed better ways to view the results and use them to make decisions about interventions.

Organisations:

- *Global Alliance for Disaster Risk Reduction and Resilience in the Education Sector (GADRRRES)*
- *Risk RED*
- *Ministry of Education and Culture (MoEC), Indonesia*
- *Ministry of Education and Sports (MoES), Laos*
- *Save the Children*
- *SPRINT Laboratory, Polytechnic Department of Engineering and Architecture, University of Udine*
- *United Nations Educational, Scientific and Cultural Organization (UNESCO)*

Problems:

- Governments lacked a way to assess CSS policy interventions.
- Governments lacked a way to efficiently identify high risk schools and select appropriate interventions.

Goals:

- Track CSS policy interventions at school, district, sub-national, and national level.
- Efficiently gather and manage school-level information about hazard exposure, facilities safety, school disaster management, and related education.
- Efficiently identify schools needing interventions.
- Estimate costs for retrofit and replacement of weak school facilities.

Intervention:

- CSS Assessment Suite, three digital tools that can assist governments in monitoring, evaluating, and intervening for school safety.

In Italy, the Safety and Protection Intersectoral (SPRINT) Laboratory of the Polytechnic Department of Engineering and Architecture of the University of Udine was developing a third tool, Visual Inspection for defining Safety Upgrades Strategies (VISUS). Using existing hazard maps and available data on school building typology as a baseline, they were carrying out rapid visual inspections to gather information in several areas of concern: site conditions, structural performance, local structural criticalities, non-structural components and functional aspects. Based upon the gathered information the VISUS team used algorithms to grade a school's safety level. This ensured the method could be feasibly be adapted by governments and used as a technical triage process for defining safety-upgrading strategies. VISUS is available to governments with limited technical capacity yet also provides them with reliable assessment data, allowing them to make well-informed decisions and develop strategies for improving safety conditions.

Though the three tools were being independently developed, GADRRRES members agreed to develop them further and bring them together as part of a harmonised suite of tools. Risk RED, a GADRRRES partner organisation, developed the crowdsourcing app as a tool to increase awareness and stimulate demand for school safety. Save the Children and Risk RED tackled the conversion of paper-survey assessment methods to a digital platform. The United Nations Educational, Scientific and Cultural Organization (UNESCO) partnered with Sprint Lab to expand the VISUS tool.

Out of the harmonisation process came the CSS Assessment Suite. The suite is currently comprised of three approaches designed for different users, using science-based methodologies and making use of mobile applications. Whilst currently focused on school safety assessment, GADRRRES envisions future expansion of the tools to include rapid post-disaster needs and damage assessment, and integration with SMS-based, brief survey tools.

- **CSS First Step** is a simple crowdsourcing tool available as a smart phone app for anyone to use. It requires only that the user – whether a student, teacher, or community member – registers and locates their school on a map. CSS First Step then asks the user to answer basic survey questions about the school site, relevant hazards, and local disaster management strategies. Users can upload photos of the school site or local hazards. Based on the responses, the app automatically generates an e-mail back to the user with recommended next steps for action to improve school safety. The primary goal of CSS First Step is to encourage awareness of and interest in school safety.

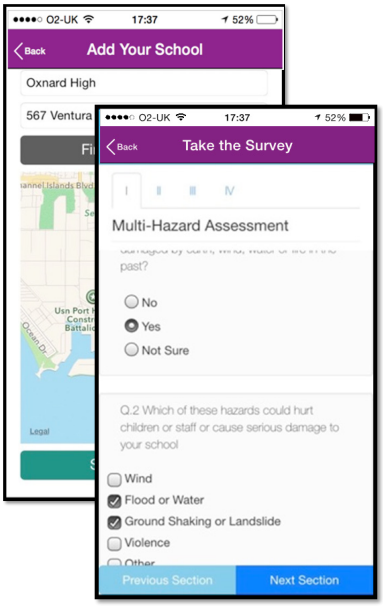

Figure 1. The CSS First Step app functions on smart phones and is intended for all users. It helps raise awareness about comprehensive school safety.

- **CSS School Safety Self-Assessment Survey** (SSSAS) uses a smart phone or tablet to guide school assessors, such as government officials or school management committees, in collecting in-depth, non-technical information on school safety at a low cost. The SSSAS tool asks users questions about student demographics, local hazard risk, school site and structures, school disaster management, and disaster risk reduction education. The SSSAS prompts the school assessors to use the smart phone or tablet to take photos that document their survey responses. Based on input data, users receive a summary report, along with recommendations for action. Separately, authorised government officials can use a web-based data portal to generate reports with summary data for the schools in their jurisdiction. They can use a map-interface to locate information about individual schools and can gain further insights by viewing photos of the school remotely. The SSSAS helps authorities triage those schools that may be in need of the costlier, in-depth school facilities assessment that VISUS offers.

Figure 2. The CSS School Safety Self-Assessment Survey (SSSAS) functions on smart phones and tablets, allowing authorised personnel to gather data on all three pillars of comprehensive school safety. The survey generates summary reports with recommending actions.

- **VISUS CSS**, which stands for the Visual Inspection for defining Safety Upgrades Strategies, is the third and most technically advanced tool in the CSS Suite. VISUS is a multi-hazard school safety assessment methodology that focuses on technical assessment of school structures and facilities. Surveyors using VISUS must be trained and have expertise in construction or engineering. After surveyors have collected data at school sites, the data is sent for remote automated processing; the app returns individual school and collective summary reports, including budget estimations for safety upgrading.

  VISUS is designed to support time-efficient and reliable safety assessments of school sites and structures through a science-based methodology adapted to the local context. VISUS helps government officials prioritize and implement school rehabilitation, retrofit and replacement. While the tool was originally designed for earthquake risk assessment and piloted in Italy (2010) and El Salvador (2013), VISUS was piloted as a multi-hazard tool in Laos (2015) in collaboration with Save the Children; in Indonesia (2015-16) in cooperation with Global Facility for Disaster Reduction and Recovery; in Peru (2016); and in Haiti (2017) in close coordination with the United Nations Development Programme (UNDP) and the United Nations Entity for Gender Equality and the Empowerment of Women**.** Key stakeholders and subject-matter experts are important to the adaptation of these tools. Important to the VISUS tool is national ownership and contextualisation to local needs. The VISUS developers recommended forming a Technical

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Working Group to guide the translation and adaptation of the survey questions and evaluation algorithms in each new context. This working group would also develop locally feasible approaches for building capacity so that the tool could be adopted at scale. The GADRRRES steering committee decided that all tools in the suite should use a similar approach to local piloting and adoption.

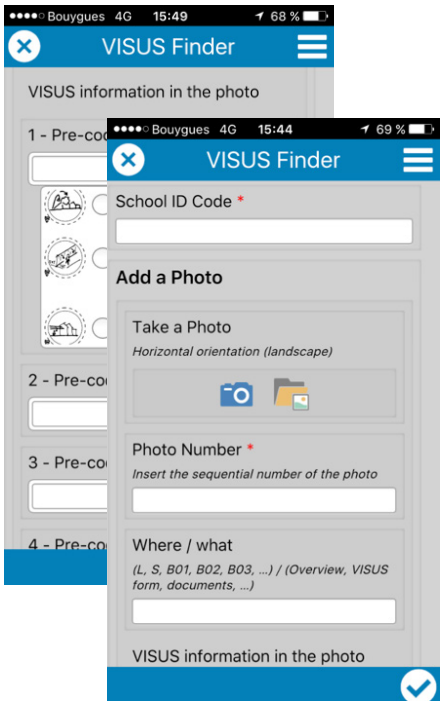

Figure 3. The VISUS app allows trained surveyors to conduct multi-hazard, rapid visual screenings of school facilities to identify structural weakness. VISUS generates summary reports, including budget estimates for safety upgrading.

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Pilot Testing in Laos and Indonesia

In Laos, Save the Children – in partnership with the Ministry of Education and Sports (MoES) – carried out pilot testing for the SSSAS tool in March of 2015 and for VISUS in October of 2015 as part of Association of Southeast Asian Nations' Safe Schools Initiative (ASSI), with support from Australian Aid, DipECHO, and New Zealand Ministry of Foreign Affairs. ASSI, a partnership between member countries and non-profit organisations to improve school safety, began work in Laos in 2014 with a focus on using information technology to achieve its goal of safer schools. The SSSAS tool, which was developed by Save the Children Laos, was piloted in 50 schools in March of 2015 using a paper-based form, and expanded to nearly 100 schools in two additional provinces the following year, using a tablet-based questionnaire.

Provincial reports generated by the SSSAS tool helped authorities understand school safety better. The reports showed many schools were exposed to health, drought and landside risks, with over half of the schools missing more than 11 days each year due to disaster impacts. Many schools lacked potable water and stated they needed early warning systems for fire, high winds, and drought. Schools identified, but had not yet carried out many necessary risk reduction measures assessed by the SSSAS tool. The assessment also showed bright spots: DRR is integrated into curriculum at most of the pilot schools where intervention programs had taken place, and most students and teachers did understand hazards, risk reduction and had some of the basic skills for response preparedness. Teachers and representatives from the MoES indicated use of the visuals within the SSSAS tool makes the tool particularly useful for school management committees, as well as education and disaster management authorities.

Following the pilot testing of the SSSAS tool in Laos, Save the Children conducted a review of the tool to identify areas for potential improvement. They made adjustments to the automated reporting forms and prioritised porting to IOS as well as Android platforms. In the next phase, they want to add drag and drop features and be able to build their own reports.

Figure 4. After completing a SSSAS assessment of schools, the MoES generated school and provincial reports to understand comprehensive school safety issues better.

Indonesia was the first country in which a large-scale pilot of the multi-hazard VISUS tool took place. UNESCO, with financial support from the Indonesian government, conducted 60 VISUS assessments in 2015 in western Indonesia using a paper-based form. In 2016, with support from the World Bank, VISUS-trained surveyors piloted a tablet-based format, translated into Bahasa, at 100 schools in eastern Indonesia.

Representatives from the SPRINT Laboratory, with support from UNESCO and engineering faculty from the Indondesian Bandung Institute of Technology, trained local surveyors from the engineering and architecture departments of local universities and from vocational schools to operate VISUS. Students were eager to participate, because they perceived VISUS training as advantageous and relevant to their own studies and career trajectories. During training sessions, representatives from the Ministry of Education and Culture (MoEC), as well as sub-national authorities, were present so that they too understood the school assessment process. Bandung Institute of Technology helped adapt VISUS to the local geographic context and provided relevant information about the study area, such as pertinent local hazards and building typologies. In each of the pilots, the VISUS reports provided specific recommendations for upgrading school facilities.

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Figure 5. In Indonesia, surveyors from local engineering and architecture departments and vocational schools were trained to use VISUS in order to conduct rapid visual assessments of school facilities. Photo credit: UNESCO Jakarta office.

Prospects for Scaling-Up the CSS Assessment Suite

The CSS Assessment Suite tools are still in early stages of piloting and whilst salience and enthusiasm are high, the effectiveness of these tools for action planning has not yet been systematically evaluated.

In both Laos and Indonesia, project stakeholders identified several challenges to the adoption of these technologies. They noted that before the tools could be adopted, local stakeholders and subject-matter experts needed to be engaged. Local stakeholders needed to be prepared to operate new technologies. Even if stakeholders were prepared to adapt and use the tools, scaling up and implementing the tools across an entire region or nation would require further commitment. It would only work if local organisations were able to sustain the process of data collection, analysis and decision-making.

In Laos, using the SSSAS tool requires familiarity with basic tablet operation, as well as knowing how to maintain current operating systems, upload current versions of the app, and download data collected. District education offices need to be trained in these basic skills before they can implement SSSAS across all of their 147 education districts. The MoES also requires technological and human resources to be able to manage the portal. Organisational partners may need to provide moderate support to the government, even after implementation, to

maintain the data collected until the government is able to fully operate such systems themselves. Furthermore, Laos needs a more comprehensive legal framework that codifies school safety measures into law in order to support the institutionalisation and scaling up of tools like SSSAS.

In addition to the technological and human resources needed for SSSAS, VISUS requires a population of trained surveyors. Governments wanting to implement VISUS across an entire nation may need to train thousands of surveyors to use the tool. One strategy for developing a large body of potential surveyors is integrating VISUS training into the curricula within vocational schools and engineering departments of universities. The simultaneous wider adoption of the less costly, non-technical SSSAS tool could effectively triage schools to reduce the number of schools needing the costlier VISUS technical assessment.

Indonesian pilot project stakeholders noted another challenge for scaling-up – the importance of adapting the methodology to local environments. In geographically diverse countries like Indonesia, which is composed of 13,000 islands, adaptation of VISUS parameters to the variety of geophysical and climactic contexts would be challenging and time-consuming. In such cases, national governments would need to rely heavily on local governments for the adaptation and implementation of the methodology, as well as on the extensive network of academic institutions present in the whole country.

Finally, the resources to invest in mainstreaming the use of CSS Assessment Suite tools will necessarily compete with the primary focus Ministries of Education have on providing quality basic education. Until the costs of *not* investing in risk reduction can be assessed and proven, risk reduction and resilience in schools may remain a secondary and neglected goal.

Major Impacts:

- Ministries of Education in Laos and Indonesia use digital tools to gather school-level data.

Greatest Insights:

- Engage local stakeholders and subject matter experts.
- Work with local organisations that can sustain data collection.
- Build capacity of government actors and surveyors.

What's Next:

- Adapt CSS Assessment Suite to new contexts.
- Expand to include post-disaster assessment and SMS-based, survey tools.

Comprehensive School Safety (CSS) is a framework for advocacy and action aligning policies and plans across education and disaster management sectors at all level. It uses child-centred all-hazards risk assessment and context analysis as the evidence base for action in three overlapping areas: Safe Learning Facilities, School Disaster Management, and Risk Reduction and Resilience Education. For more information, see http://www.gadrrres.net/

Suggested citation: GADRRRES. (2017). All Pillars: Scaling-up Comprehensive School Safety Assessment in Laos and Indonesia, GADRRRES Comprehensive School Safety Policy Case Studies Series. http://www.gadrrres.net/resources